and south-facing slopes and on sites with and without evidence of previous partial harvest. The aspect and harvest models correctly classified 65–93% of the sites; however, none of the models were stable, as determined by cross-validation. Following this we examined variation among nest sites within the WNF by comparing mean habitat values among 4 of the 5 Fire Management Analysis Zones (FMAZ) identified by the U.S. Forest Service for fire control purposes. The FMAZ areas were defined primarily in terms of topography, annual precipitation, and estimates of fuel loading and fire frequency. We found significant differences among the FMAZ for nearly half of the 60 habitat features we compared at nest sites. It may be possible to develop predictive models within each FMAZ using the original or other models. For example, the harvest model (with a larger sample) may be useful to researchers and managers who wish to conduct adaptive management experiments in stands managed for timber and/or fire protection. The use of such models within the FMAZ framework would likely be more powerful and allow better management throughout the region.

BLACKFLY (*SIMULIUM* SPP.) INDUCED MORTALITY OF RED-TAILED HAWK NESTLINGS IN NORTHWEST WYOMING

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Red-tailed hawk productivity monitoring in Grand Teton National Park, Wyoming during 1990 and 1991 indicated a high proportion of nests were failing when nestlings were 2–4 weeks old. Dead nestlings found within and under nests, when adult pairs were still defensive and prey was abundant in the nest, suggested parasitism as a potential cause of mortality. In 1992, 20 occupied red-tailed territories were monitored throughout the nesting season. Eggs were laid at 18 territories and hatched at 13. Infestations of blackflies (*Simulium* spp.) were documented at all nests visited ($N = 12$) between 4–9 June when nestlings were from 3 to 20 days old. Infestation levels among nests varied from tens to thousands of flies. Flies primarily sucked blood from areas around the eyes, cere, auricular opening, and chin, but also burrowed through the down anywhere on the body. Fly activity decreased substantially during periods of cold weather. Complete brood mortality, as a result of dehydration and/or nestlings being driven from their nests, was documented at 4 nests. Circumstantial evidence indicated that blackflies caused nestling or post-fledgling mortality at 2 additional nests. Dead nestlings found at 2 more nests located late in the nesting season implicated blackfly infestations as well. In total, blackflies were believed to have caused mortality at 8 of 15 (53%) nests known to hatch young. Nestling mortality occurred in as few as 7 days after infestations began. Avian blackfly infestations and associated mortality have rarely been reported. We believe blackfly infestations may be locally important sources of red-tailed hawk mortality, especially if they are chronic, rather than acute, as has been suggested by others. Furthermore, because of 1) their small size, 2) their ephemeral presence at the nests, and 3) the wide range of nestling ages at which mortality occurs, blackfly infestations are probably undetected during many standard productivity surveys based on 2–3 nest visits during the nesting season.

FEASIBILITY OF FASTING MIGRATION IN OSPREY OF THE INTERIOR AMERICAN WEST

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We reviewed current research on raptor migration and developed an energetics model to examine the potential importance of fasting on migration times of Osprey (*Pandion haliaetus*) migrating through the interior of North America. These piscavores fly inland over the semi-arid West and Mexico before arriving at their wintering area on the Pacific coast of southern Central America. The inter-west population also winters further north and may expend less energy during their migration than coastal Osprey, which must use powered flight to cross large water barriers. Therefore, fasting would seem to be more probable in this shorter distance, lower energy migration with limited prey availability. Our model predicts that a 1.68 kg Osprey would take 22 days, consuming 0.530 kg of fat (a fat density of 32% of lean body mass), to complete a fasting migration of 7800 km. Due to limits of daily intake, it was calculated to take 13 days of maximum energy intake to deposit this fat density. The predicted travel time for fasting migration was comparable to migration times estimated from lookout observations and banding data. If these Osprey did not fast during the entire migration, they would have to spend time foraging daily or break up their trip into several segments that are separated by stopovers to replenish their fat reserves, and we found that this would increase their migration time dramatically.

OFFSPRING SEX RATIOS OF AMERICAN KESTRELS IN SOUTHWESTERN IDAHO

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A two-year study of American kestrel (*Falco sparverius*) offspring sex ratios was begun in 1992. Seventy-six nest boxes in southwestern Idaho were monitored closely to identify laying and hatching sequences. Diets of selected pairs were supplemented while control pairs were not to test the effect of resource availability on sex ratio. Nestlings were weighed and measured frequently to compare differential allocation of food to mass and feather development by male and female offspring and to compare production costs of each gender. The study's theoretical basis, design, and preliminary results will be discussed.